

Cloning of a cDNA from stable fly which encodes a protein with homology to a *Drosophila* receptor for tachykinin-like peptides.
Felix D. Guerrero, USDA-ARS Livestock Insects Research Lab,
Kerrville, TX 78028, USA.

Tachykinins are members of a family of peptides which act as neurohormones in mammals. These peptide hormones have been implicated in a number of mammalian motor and sensory functions, particularly related to central and peripheral neuron activity and the contraction of smooth muscle. There is evidence for three classes of tachykinin receptors in mammals. The classification is based on interactions with specific natural tachykinins and synthetic agonists which selectively act on only one of the three receptor classes. Tachykinin-like peptides have been purified from invertebrates and several cDNAs from *Drosophila* have been cloned which code for proteins with structural and biochemical properties similar to mammalian tachykinin receptors.

A stable fly, *Stomoxys calcitrans*, cDNA library was synthesized in a λgt22 cloning vector using whole adult flies and screened with a *Drosophila melanogaster* tachykinin receptor DNA probe. One 3.9 kb clone, designated SFT6, was purified and sequenced and found to have an open reading frame which encoded a protein with significant homology to the *D. melanogaster* DTKR cDNA. The DTKR cDNA is reported to encode a receptor-like protein with homology to vertebrate tachykinin receptors and whose mRNA is expressed in the adult insect's central nervous system and specific subsets of neurons in the developing embryo. In expression studies, DTKR is activated by vertebrate substance P-like peptides. Homology between the SFT6 open reading frame and reported tachykinin receptors is highest in the putative membrane spanning regions. Characterization and expression studies of the *Stomoxys* clone SFT6 are underway to determine if this clone codes for a functional tachykinin receptor.